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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/723,751

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H. Richard Gail

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EXAMINER

EHNE, CHARLES

ART UNIT

PAPER NUMBER

2113

DATE MAILED: 05/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/723,751

Applicant(s)

GAIL ET'AL.

Examiner

Charles Ehne

Art Unit

2113

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim does not clearly set forth the metes and bounds of the limitation: "having a limitation taken from a group of limitations consisting of". Examiner interprets claim with respect to only one limitation taken from a group of limitations.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-8,11-19,21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pillutla (2003/0177414) taken in view of Bereiter (6,357,071).

As to claim 1, Pillutla discloses a method comprising diagnosing from a repository at least one fault in a system, said repository represented as a directed graph having one or more undivided directed subgraphs, the step of diagnosing comprising the steps of:

receiving a first description of said at least one fault (Page 2, ¶ 0033, lines 1-12);  
employing said first description to identify a response from the said repository (Page 5, ¶ 0057); and

if the response is a diagnosis stopping, otherwise identifying at least one subgraph responsive to said first description (Page 5, ¶ 0057).

Pillutla fails to disclose:

using said at least one subgraph in determining said diagnosis, stopping if said diagnosis results, otherwise forming a modified description based upon said at least one subgraph; and

replacing said first description with said modified description and repeating the steps of receiving, employing, identifying and using until said diagnosis results.

Bereiter discloses a method for diagnosing and correcting a technical problem in a client computer system (abstract, lines 1-6). Bereiter does disclose the diagnosing comprising the steps of:

using said at least one subgraph in determining said diagnosis, stopping if said diagnosis results, otherwise forming a modified description based upon said at least one subgraph (column 7, lines 25-36); and

replacing said first description with said modified description and repeating the steps of receiving, employing, identifying and using until said diagnosis results (column 7, lines 38-40).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Bereiter's steps forming a modified description based upon the at least one subgraph and replacing the first description with the modified description and repeating the steps of receiving, employing, identifying and using until said diagnosis results with Pallutla's diagnosing steps. A person of ordinary skill in the art would have been motivated to make the modification because the new modified description is allows for another chance to identify the problem (Bereiter: column 7, lines 38-40)

As to claim 2, Bereiter discloses the method as recited in claim 1, wherein the first description is completely covered by the diagnosis, the method further comprising implementing a solution based on the diagnosis (column 7, lines 40-42).

As to claim 3, Pillutla discloses the method as recited in claim 1, wherein the first description includes a set of symptoms describing said at least one fault (Page 2, ¶ 0033, lines 1-5).

As to claim 4, Bereiter discloses the method as recited in claim 3, wherein the modified description includes an additional set of symptoms identified for probing by the subgraph (column 9, lines 18-25).

As to claim 5, Pillutla discloses a method as recited in claim 1, wherein the first subgraph is identified by a method employing an index mapping descriptions to initial subgraphs, the trivial index simply mapping all descriptions to one subgraph (Figure 1B, Page 2, ¶ 0023, lines 4-8) .

As to claim 6, Pillutla discloses the method as recited in claim 1, wherein said repository is remote and said undivided subgraphs are downloaded from said repository to a local agent performing the diagnosis as needed (Page 4, ¶ 0045, lines 1-6).

As to claim 7, Pillutla discloses the method as recited in claim 1, wherein said system is a system taken from a group of systems consisting of: a machine; a software program; a process; and any combination of these (Page 2, ¶ 0022, lines 1-5).

As to claim 8, Pillutla discloses the method as recited in claim 1, having a limitation taken from a group of limitations consisting of:

wherein each said undivided subgraph is implemented as executable code (column 9, lines 18-25);

wherein said executable code is written in an object-oriented programming language (column 9, lines 18-25);

wherein said executable code is written in a programming language that supports late binding (column 9, lines 18-25);

wherein said programming language supports late binding and on-demand downloading of classes (column 9, lines 18-25);

wherein said programming language that is object-oriented and supports late binding and on-demand downloading of classes is Java (column 9, lines 18-25);

wherein said local agent is a machine;

wherein said remote repository is downloaded as needed onto a small computing device;

wherein said remote repository is hosted by a service provider supporting a plurality of customers and having each customer download subgraphs as needed to perform diagnosis;

wherein at least one of said customers is a customer support center diagnosing faulty systems on behalf of a plurality of its own customers;

wherein said customer is a field representative performing diagnosis of a failing system; wherein said customer is a faulty system operating in a self-diagnostic mode; and

wherein said faulty system applies the solution identified by the fault diagnosis system in an autonomic, self-healing mode; and any combination of these limitations.

As to claim 11, Pillutla (2003/0177414) taken in view of Bereiter (6,357,071) disclose an article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing diagnosis from a

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repository of at least one fault in a system, the computer readable program code means in said article of manufacture comprising computer readable program code means for causing a computer to effect the steps of claim 1 (see claim 1 rejection).

As to claim 11, Pillutla (2003/0177414) taken in view of Bereiter (6,357,071) disclose a program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for diagnosing from a repository at least one fault in a system, said method steps comprising the steps of claim 1 (see claim 1 rejection).

As to claim 13, Pillutla discloses an apparatus comprising means for diagnosing from a repository at least one fault in a system, said repository represented as a directed graph having one or more undivided directed subgraphs, the step of diagnosing comprising the steps of:

means for receiving a first description of said at least one fault (Page 2, ¶ 0033, lines 1-12);

means for employing said first description to identify a response from the said repository (Page 5, ¶ 0057); and

means for if the response is a diagnosis stopping, otherwise identifying at least one subgraph responsive to said first description (Page 5, ¶ 0057).

Pillutla fails to disclose:

means for using said at least one subgraph in determining said diagnosis, stopping if said diagnosis results, otherwise forming a modified description based upon said at least one subgraph; and



means for replacing said first description with said modified description and repeating the steps of receiving, employing, identifying and using until said diagnosis results.

Bereiter discloses a method for diagnosing and correcting a technical problem in a client computer system (abstract, lines 1-6). Bereiter does disclose the diagnosing comprising the steps of:

means for using said at least one subgraph in determining said diagnosis, stopping if said diagnosis results, otherwise forming a modified description based upon said at least one subgraph (column 7, lines 25-36); and

means for replacing said first description with said modified description and repeating the steps of receiving, employing, identifying and using until said diagnosis results (column 7, lines 38-40).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Bereiter's steps forming a modified description based upon the at least one subgraph and replacing the first description with the modified description and repeating the steps of receiving, employing, identifying and using until said diagnosis results with Pallutla's diagnosing steps. A person of ordinary skill in the art would have been motivated to make the modification because the new modified description is allows for another chance to identify the problem (Bereiter: column 7, lines 38-40)

As to claim 14, Pillutla (2003/0177414) taken in view of Bereiter (6,357,071) disclose a computer program product comprising a computer usable medium having

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computer readable program code means embodied therein for causing diagnosis from a repository of at least one fault in a system, the computer readable program code means in said computer program product comprising computer readable program code means for causing a computer to effect the functions of claim 13 (see claim rejection 13).

As to claim 15, Bereiter discloses a method for diagnosing a fault, said method comprising:

- commencing a diagnosis session;

- initializing a current state, the current state being symptoms comprising an initial description of a fault being diagnosed (column 7, lines 19-23);

- identifying one graph from a repository of graphs which, when taken together, encode symptoms and diagnoses of a system, and assigning said one graph to be the current graph (column 7, lines 8-16); and

- retrieving said current graph from the repository (column 7, lines 10-13);

Bereiter fails to disclose:

- assigning one node of the current graph to be the current node;

- identifying the node type of the current node; and

- if the current node is of type diagnosis, then returning the diagnosis associated with the node as the diagnosis of the fault;

- if the node type is not of type diagnosis then performing a particular node type operation, and repeating the step of identifying the node type of the current node, until the node type of the current node is of type diagnosis.

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Pillutla discloses a method of diagnosing faults in a computer system by traversing nodes in a decision tree (abstract, lines 1-6). Pillutla does disclose:

assigning one node of the current graph to be the current node (Page 5, ¶ 0060, lines 4-12);

identifying the node type of the current node (Page 5, ¶ 0057); and

if the current node is of type diagnosis, then returning the diagnosis associated with the node as the diagnosis of the fault (Page 5, ¶ 0057);

if the node type is not of type diagnosis then performing a particular node type operation, and repeating the step of identifying the node type of the current node, until the node type of the current node is of type diagnosis (Page 5, ¶ 0057).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Bereiter's method of diagnosing faults with Pallutla's method of assigning and identification of nodes for a current diagnostic graph. A person of ordinary skill in the art would have been motivated to make the modification because the analysis nodes provide information required to determine which symptom branches to follow during traversal and diagnosis nodes provide diagnoses and or proposed remedies for an application (Pillutla: page 1, ¶ 0006, lines 6-13)

As to claim 16, Pillutla discloses a method as recited in claim 15, wherein the step of identifying one root graph comprises employing indexing graphs by symptoms (Page 2, ¶ 0023).

As to claim 17, Pillutla and Bereiter disclose a method as recited in claim 15, wherein:

the repository of directed graphs is a remote repository, remote from a process running the fault diagnosis session, said remote repository comprising a complete set of directed graphs which taken together encode the symptoms and diagnoses of the fault diagnosis system (Pillutla: Page 1, ¶ 0019, lines 1-4 & Page 2, ¶ 0023);

the step of identifying one graph incorporates logic to remotely ask the repository to identify one graph at a known or discoverable location (Bereiter: column 7, lines 8-10); and

the step of retrieving incorporates logic to retrieve remotely from said known or discoverable location (Bereiter: column 7, lines 10-13, This is inherent due to the fact that a computer and server are transmitting and receiving the data).

As to claim 18, Pillutla (2003/0177414) taken in view of Bereiter (6,357,071) disclose article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing diagnosis of a fault the computer readable program code means in said article of manufacture comprising computer readable program code means for causing a computer to effect the steps of claim 15 (see claim rejection 15).

As to claim 19, Pillutla (2003/0177414) taken in view of Bereiter (6,357,071) disclose a program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for diagnosing a fault, said method steps comprising the steps of claim 15 (see claim rejection 15).

As to claim 21, Pillutla and Bereiter disclose a method as recited in claim 15, wherein:

if the current node is of type call-graph, then the step of performing a particular node type operation includes setting the current graph to be a graph associated with the call-graph node, and repeating the steps of retrieving and assigning (Bereiter: column 7, lines 60-63);

if the current node is of type functional-branch, then the step of performing a particular node type operation includes evaluating a function associated with the functional-branch node over the current state of the diagnosis session, and assigning the value of the function to be the current node (Pillutla: Page 5, ¶ 0057, lines 7-9);

if the current node is of type question, then the step of performing a particular node type operation includes asking a question associated with the current node, collecting an answer to the question, updating the current state with a pair having a form <question, answer>, traversing an edge labeled by the answer or by a function that accepts the value as being valid, reaching a new node in the current graph, and assigning the new node to be the current node (Pillutla: Page 5, ¶ 0057, lines 7-9);

if the current node type is of type test, then the step of performing a particular node type operation includes performing a test on the faulty system, adding additional symptoms to the current state based on the test results, traversing the edge leaving the current node to reach a new node and assigning the new node to be the current node (Pillutla: Page 5, ¶ 0058, lines 3-6);

if the current node type is of type lookup, then the step of performing a particular node type operation includes querying a source external to the diagnosis system and the user, adding additional symptoms to the current state based on the query results,

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traversing the edge leaving the current node to reach a new node and assigning the new node to be the current node (Bereiter: column 5, lines 25-31); and

if the current node type is of type state-transformation, then the step of performing a particular node type operation includes applying a function associated with the state-transformation node to the current state to modify the current state, traversing the edge leaving the current node to reach a new node and assigning the new node to be the current node (Bereiter: column 8, lines 15-18).

As to claim 22, Pillutla and Bereiter disclose a method as recited in claim 15, wherein:

a node of type diagnosis is a node representing one definitive diagnosis of the fault and optionally supplying an action plan to remedy the fault (Pillutla: Page 5, ¶ 0057, lines 5-7);

a node of type call-graph is a node connecting one graph to another graph, allowing composition of graphs (Bereiter: column 7, lines 60-63);

a node of type functional-branch is a node which allows a transfer of control to any other node in the current graph where the new node is the computed value of a function (associated with the functional-branch node) of the current state of the diagnosis session, where the current state is represented by the set of all <question, answer> pairs formed from questions already answered in the current session (Pillutla: Page 5, ¶ 0057, lines 7-9); and

a node of state-transformation is a node which allows modification of the current state by applying a function associated with the state-transformation node to the current state to modify it (Bereiter: column 8, lines 15-18).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination Pillutla and Bereiter as applied to claim 1 above, and further in view of Takayama (2003/0115510).

As to claim 9, Pillutla and Bereiter disclose a method of diagnosing a fault in a computer system from a repository (see claim rejection 1). The combination fails to disclose wherein diagnosing is done proactively to prevent faults from occurring in the future and/or to train someone to use said system successfully so that faults will not occur.

Takayama discloses a preventive maintenance contract for a machine (Page 3, ¶ 0037, lines 1-2). Takayam does disclose wherein diagnosing is done proactively to prevent faults from occurring in the future and/or to train someone to use said system successfully so that faults will not occur (Page 3, ¶ 0037, lines 2-11).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Bereiter's and Pallutla's method diagnosing faults with Takayam's proactive diagnosis of faults. A person of ordinary skill in the art would have been motivated to make the modification because by periodically conducting a fault diagnosis you can estimate the occurrence of the disorder (Takayam: Page 3, ¶ 0037, lines 6-9).

Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination Pillutla and Bereiter as applied to claims 1 and 20 (respectively) above, and further in view of Knightbridge (2004/0019900).

As to claim 10, Pillutla and Bereiter disclose a method of diagnosing a fault in a computer system from a repository (see claim rejection 1). The combination fails to disclose the service provider charging each customer for an amount of resources consumed during any diagnosis session.

Knightbridge discloses a remote repository providing service and support to clients (Abstract, lines 4-10). Knightbridge does disclose the service provider charging each customer for an amount of resources consumed during any diagnosis session (Page 4, ¶ 0048, lines 6-9).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Bereiter's and Pallutla's method diagnosing faults with Knightbridge's billing method of charging each customer for an amount of resources consumed during any diagnosis session. A person of ordinary skill in the art would have been motivated to make the modification because the service provider can calculate bills for individual users that correspond to their exact usage history (Knightbridge: Page 4, ¶ 0048, lines 6-13).

As to claim 20, Pillutla and Bereiter disclose a method of diagnosing a fault in a computer system from a repository (see claim rejection 15). The combination fails to disclose the service provider charging each customer for an amount of resources consumed during any diagnosis session.



Knightbridge discloses a remote repository providing service and support to clients (Abstract, lines 4-10). Knightbridge does disclose the service provider charging each customer for an amount of resources consumed during any diagnosis session (Page 4, ¶ 0048, lines 6-9).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Bereiter's and Pallutla's method diagnosing faults with Knightbridge's billing method of charging each customer for an amount of resources consumed during any diagnosis session. A person of ordinary skill in the art would have been motivated to make the modification because the service provider can calculate bills for individual users that correspond to their exact network resource usage (Knightbridge: Page 4, ¶ 0048, lines 6-13).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Ehne whose telephone number is (571)-272-2471. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571)-272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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